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NEWFOUNDLAND AND LABRADOR HYDRO

# Annual Report 1977





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**NEWFOUNDLAND AND LABRADOR HYDRO**

Head Office: St. John's, Newfoundland, A1A 2X8, Telephone (709) 753-8990, Telex 016-4503

**April 28, 1978**

**Honourable Brian Peckford,  
Minister of Mines and Energy,  
Department of Mines and Energy,  
95 Bonaventure Avenue,  
St. John's, Newfoundland.**

**Dear Minister:**

On behalf of the Board of Directors of Newfoundland and Labrador Hydro, I am pleased to submit the financial statements of the Corporation covering the year ended December 31, 1977, together with the report of the Board thereon.

**Yours sincerely,**

**D. J. Groom  
Chairman and  
Chief Executive Officer**



## OFFICERS

**Denis J. Groom**  
Chairman and  
Chief Executive Officer

**Wallace S. Read**  
Senior Vice President

**J. Innes Carr**  
Vice President, Finance

**Cyril J. Greene, Q.C.**  
Vice President, Legal

**John P. Henderson**  
Vice President, Operations

**Brian C. McGrath**  
Vice President, Projects

**David W. Mercer**  
Vice President, Corporate Planning

## DIRECTORS

**Lewis H. M. Ayre**

**Angus A. Bruneau**

**Craig L. Dobbin**

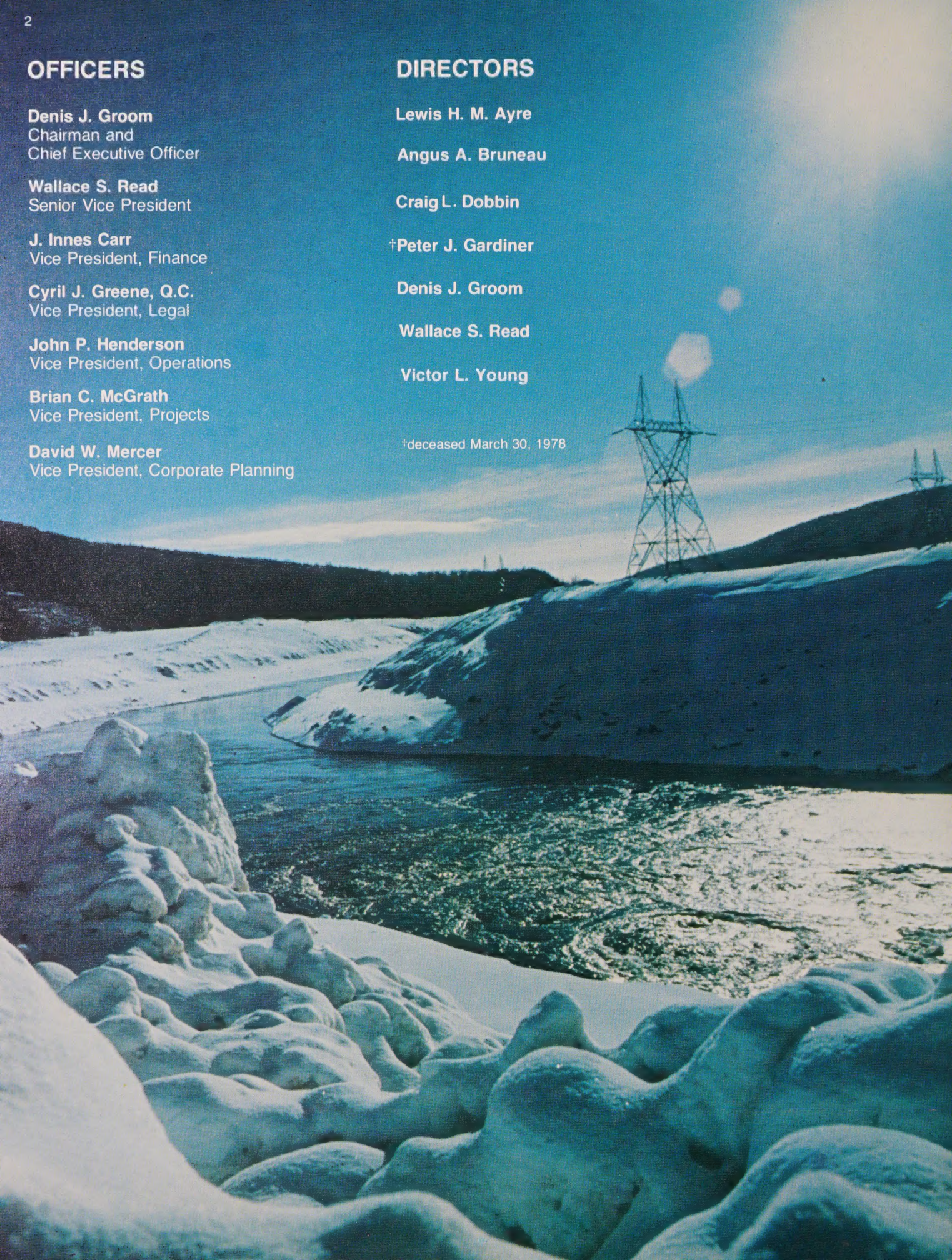
**†Peter J. Gardiner**

**Denis J. Groom**

**Wallace S. Read**

**Victor L. Young**

†deceased March 30, 1978





## Chairman's Foreword

For all of us in the Newfoundland and Labrador Hydro group the tragic plane crash on the evening of Friday, December 9th, with the loss of the lives of all eight persons aboard, marred the conclusion of an otherwise successful year. While the crash was obviously a major personal tragedy for the families and friends of those who died, the Corporation also suffered serious loss of valuable and experienced personnel. Since the year-end the Corporation has been dealt yet another blow, with the sudden and untimely death of Peter Gardiner, who was a director of both Newfoundland and Labrador Hydro and CFLCo. Mr. Gardiner will be sadly missed by us all.

The move of the Churchill Falls (Labrador) Corporation's Montreal-based offices to St. John's was successfully accomplished on schedule by June 1977, notwithstanding the fact that virtually all the former Montreal staff had to be replaced. Under the direction of the President of CFLCo, Mr. W.S. Read, the new staff has settled in well and is coping with the complex requirements of that corporation.

In June 1977, Government enacted legislation requiring the Corporation to appear before the Public Utilities Board (PUB) to substantiate any increases in its rates to "retailers". The Act provides for the PUB to conduct a hearing and to recommend appropriate rates to the Minister of Mines and Energy. The Act furthermore states that the rates shall be sufficient "to recover the cost of service provided by it and a margin of profit sufficient to achieve and maintain a sound financial position". On September 2, 1977, the Corporation referred to the PUB a proposal covering new rates for its retailer customers. The hearing, which commenced on September 29, 1977, concluded on February 6, 1978 and was the longest in the Board's history. While the

Corporation was happy to have had this opportunity to explain the reasons for the increases, the length of the hearing and the enormous amount of detail required, seriously interfered with the ongoing management of the business. The PUB has indicated its belief that with many points of principle now established, future referrals can be dealt with in a shorter time.

The Corporation has continued its efforts to seek ways and means of developing Labrador's hydro-electric potential and to construct a transmission line, connecting the island grid to Churchill Falls. In this regard, there have been some encouraging developments since the year-end, culminating in the Federal-Newfoundland Agreement on February 15, 1978, to establish a Lower Churchill Development Corporation.

At Churchill Falls, rectification work continued on those units which had shown signs of deterioration of the stator windings. A massive effort on the part of all concerned resulted in all eleven units being made fully operational by the beginning of December, to meet the period of peak winter demand. On December 3, 1977, a new production record was set, when station load peaked at 5,658 megawatts, or 8.3% above rated output. Further rectification work remains to be done during 1978, following which it is hoped that all the present problems with the units will have been overcome.

The latter part of the year has seen the satisfactory completion, on time and within budget, of the 150 MW extension to the Bay d'Espoir generating station. In October, the decision was also taken to commence work on the Hinds Lake hydro-electric development. These two additions, plus the 150 MW extension to the Holyrood plant which is currently in progress, will provide the extra capacity and energy required to meet demand



**D. J. Groom,**  
Chairman and Chief Executive Officer

until the early 1980's.

The entire management and staff of Newfoundland and Labrador Hydro remain committed to providing the best possible service at the lowest possible cost to consumers in this Province. On behalf of the Board of Directors, I wish to extend grateful thanks to all the employees of the Newfoundland and Labrador Hydro group for their hard work and support during 1977.

**D.J. Groom**  
Chairman and Chief Executive Officer.



# Island Operations

Production by Newfoundland and Labrador Hydro plants on the Island amounted to 3315 million kilowatthours in 1977, an increase of 9.8% over 1976. In addition Hydro purchased 105 million kilowatthours from Bowater Power Company. Water inflows into the Bay d'Espoir reservoirs set a new record of 25% above average resulting in a record production at Bay d'Espoir of 2,921 million kilowatthours. Thermal generation provided the remaining 394 kilowatthours.

Peak demand on Hydro's system was 679 MW compared with 671 MW in 1976 or an increase of only 1.2%. This low peak was a result of the mild weather in December 1977.

Sales to industrial customers were 985 million kilowatthours, up 13.3% over 1976 and sales to Utilities were 2,311 million kilowatthours, an increase of 13.5% over 1976.

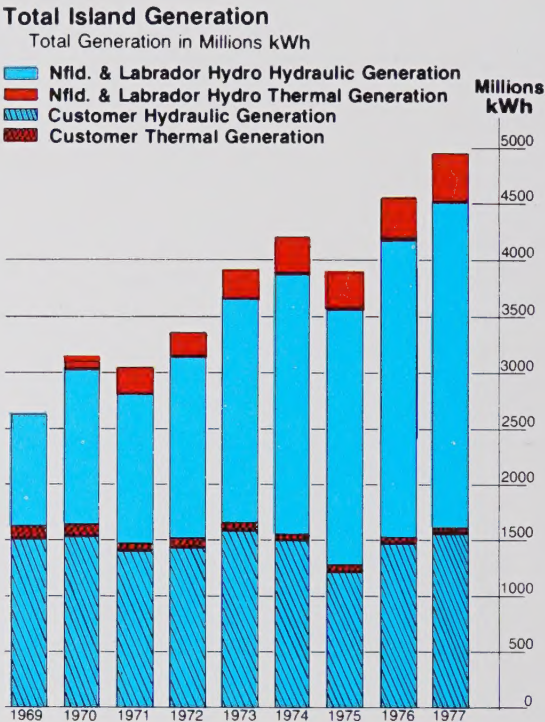
The transmission line from Springdale to Deer Lake and associated terminals at Springdale, Indian River and Deer Lake were purchased by Hydro in May, when Bowater Power Company decided to sell its third

party business to Newfoundland Light & Power Co. Limited. Newfoundland Light is now a direct customer of Hydro in the Corner Brook-Deer Lake-Buchans area of the Province rather than through Bowater Power.

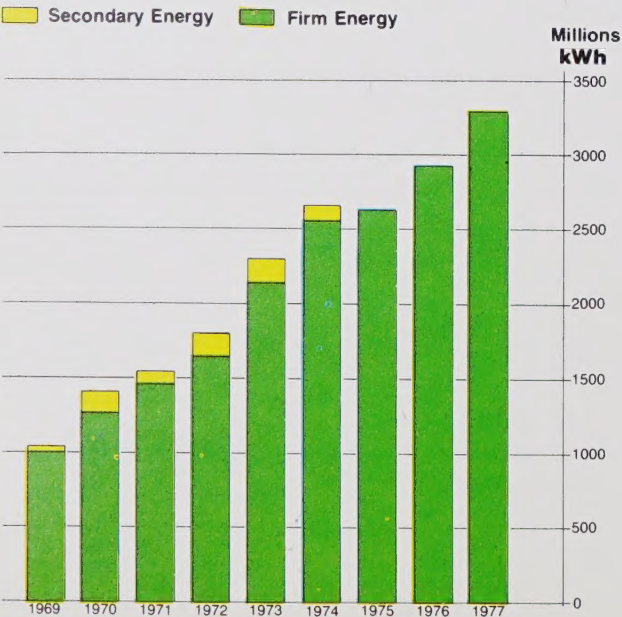
A new gas turbine near St. John's was commissioned on October 5,

1977 adding 54 MW of peaking capacity.

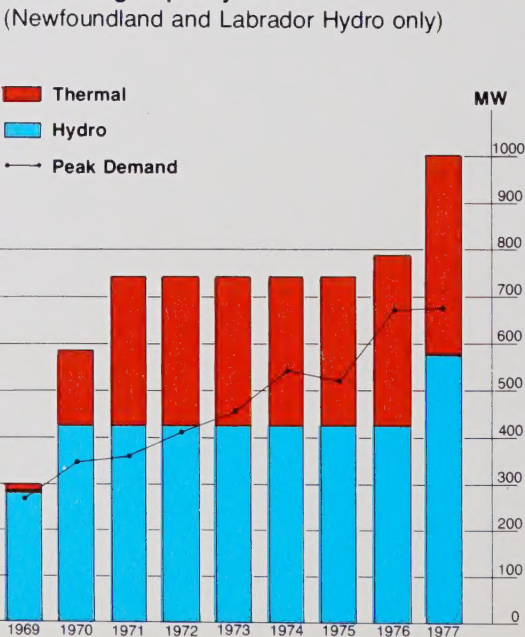
The seventh unit at Bay d'Espoir went into operation on December 9, 1977 adding 154 MW of peaking capacity bringing the Corporation's generating capability to 1,003 MW.



## Sales (Newfoundland and Labrador Hydro only)



## Generating Capacity & Demand (Newfoundland and Labrador Hydro only)





## Capital Works

In early December, 1977 the new 150 MW extension to the Bay d'Espoir hydro electric development was commissioned and placed in commercial operation, increasing the total capacity of that development to 600 MW. This project was completed within budget and on schedule.

Activity on the 150 MW extension to the Holyrood thermal plant, which is being designed and managed by ShawMont Newfoundland Limited, progressed during the year with an anticipated commissioning date of October, 1979. Some delays have been experienced with certain aspects of the work

and these in turn have delayed the start of work by several other contractors. However, it is still expected that the scheduled completion date can be met.

In late October, the Board of Directors approved the construction of a hydro-electric plant at Hinds Lake, at an

*New 150 MW generating station at Bay d'Espoir*





estimated capital cost of approximately \$80 million. This development, which is the most economic alternative to meet system requirements, will have an installed capacity of 75 MW and an average annual energy capability of 319 Gwh. It is scheduled for completion by October, 1980. The Hinds Lake development and extension to the Holyrood plant are expected to satisfy the projected growth on the island system until 1983. Further commitments to meet projected requirements beyond

1983 will have to be made by 1979.

Various terminal station extensions are in progress to meet the system requirements and planning is underway for additional transmission lines which may be authorised during 1978. During the year the 69 KV line from Churchill Falls to Goose Bay was upgraded to 138 KV with the completion of the necessary terminal stations at Churchill and Goose Bay in October 1977. This will double the capacity of that system.

The Projects Division, which administers the major capital program of Hydro, was re-organized under a new Vice-President, Projects, in June of 1977. With this re-organization, Hydro will administer "in-house" its own design and management of all miscellaneous projects of terminals and transmission line expansion up to 230 KV and will also be able to provide more effective and efficient control of those major projects which are managed by outside consultants.

*150 MW extension to the Holyrood thermal generating station*









## Financial

Consolidated revenues totalled \$147.3 million in 1977, an increase of \$14.3 million over 1976. Increased power sales of CFLCo accounted for \$2.9 million of this increase. The balance of \$11.4 million, relating to Hydro, resulted primarily from a 22.3% load growth and the full year effect of the July 22, 1976 increase in utility power rates.

Consolidated expenses in 1977 totalled \$131.2 million, an increase of \$14.1 million over 1976. Generation, transmission and administration expenses were up by \$4.6 million over 1976, largely attributable to higher oil prices and increased oil consumption. Depreciation increased by \$1.4 million, due to additional assets of Hydro coming into service and all eleven CFLCo generating units being in service for 1977. Interest rose by \$8.1 million, primarily due to higher interest rates, debt retirement exchange losses relating to the CFLCo share purchase debt, and the additional \$65 million in long-term debt issues of Hydro during the year.

Water flows into Hydro's island

reservoir were above average for the year, resulting in a \$3.0 million credit to the Provision for Water Equalization. Transfers to and from this provision are made when production from Bay d'Espoir is either above or below normal, thus compensating for the resulting effect of year to year variations in fuel consumption resulting from these fluctuations.

Net income was \$5.5 million in 1977 (1976 - \$2.5 million) including \$19.4 million (1976 - \$13.0 million) representing Hydro's share of CFLCo's earnings, before deducting interest on the CFLCo share purchase debt of \$16.9 million (1976 - \$13.1 million).

The cost of additions to property, plant, and equipment during 1977 totalled \$55.8 million, \$14.9 million less than 1976. This decrease is primarily due to the suspension of work on the Gull Island project.

Hydro placed two long-term Canadian debt issues in 1977, the first for \$30.0 million and the second for \$35.0 million. Both issues bear interest at 10% per annum and are repayable in

2002. Subsequent to the year-end an additional debt issue was placed for \$35.0 million, bearing interest at 10-1/4% per annum and repayable in 2001. Continued access to world capital markets on favourable terms is a prerequisite for Hydro to achieve its object of developing the use of power on an economic and efficient basis.

The growing costs of meeting demand for power emphasize the need for continuing high standards in financial reporting and analysis techniques. The demand for accurate and timely cost data is substantial, and is not expected to decrease. It comes both from within and outside Hydro from an increasing number of concerned parties. Changes to the organization of the Finance Division, with more depth of management being placed in the Corporate Controller's Department, and with the establishment of a Rates Department and a Financial Controls Department, have been made to better meet this demand.





# PEAT, MARWICK, MITCHELL & CO.

CHARTERED ACCOUNTANTS

Viking Building  
Crosbie Road  
St. John's, Newfoundland  
A1B 3K3

The Lieutenant-Governor in Council  
Province of Newfoundland

## Auditors' Report

We have examined the consolidated balance sheet of Newfoundland and Labrador Hydro as at December 31, 1977 and the consolidated statements of income and retained earnings and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the Corporation as at December 31, 1977 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

St. John's, Newfoundland  
Canada  
March 28, 1978

*Peat, Marwick, Mitchell & Co*  
Chartered Accountants



# Newfoundland and Consolidated Balance

.with comparativ

<b>Assets</b>		
	1977 (000)	1976 (000)
<b>Fixed assets</b> (Note 2)		
Property, plant and equipment .....	\$1,284,747	1,247,219
<b>Current assets</b>		
Cash and term deposits .....	45,075	27,888
Receivables .....	24,905	20,677
Fuel, supplies and prepaid expenses .....	8,958	6,421
	78,938	54,986
<b>Long-term receivable</b> (Note 3) .....	7,241	4,244
<b>Investment in Twin Falls Power Corporation Limited</b> (Note 4) .....	2,943	2,664
<b>Unamortized debt discount and financing expenses</b> .....	12,599	11,627
	<u>\$1,386,468</u>	<u>1,320,740</u>



# Labrador Hydro

## Sheet December 31, 1977

ures for 1976

### Liabilities and Shareholder's Equity

	1977 (000)	1976 (000)
<b>Long-term debt</b> (Notes 5 and 6) .....	<b>\$1,147,704</b>	<b>1,129,496</b>
<b>Current liabilities</b>		
Accounts payable and accrued liabilities .....	27,085	21,898
Accrued interest .....	14,978	15,090
Promissory notes .....	11,170	2,990
Long-term debt due within one year .....	54,474	32,426
Dividend payable .....	—	2,545
	<u>107,707</u>	<u>74,949</u>
<b>Provision for insurance</b> .....	<b>5,273</b>	<b>4,584</b>
<b>Provision for water equalization</b> .....	<b>7,241</b>	<b>4,244</b>
<b>Minority interest in Churchill Falls (Labrador) Corporation Limited</b> .....	<b>71,233</b>	<b>65,647</b>
<b>Shareholder's equity</b>		
Share capital		
Common shares of par value of \$1 each. Authorized 25,000,000 shares; issued 22,503,942 shares .....	22,504	22,504
Retained earnings .....	24,806	19,316
	<u>47,310</u>	<u>41,820</u>
	<u><b>\$1,386,468</b></u>	<u><b>1,320,740</b></u>

See accompanying notes

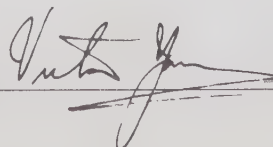
On behalf of the Board:

Signed



W. S. Read Director

Signed



Victor Young Director



# Newfoundland and Labrador Hydro

## Consolidated Statement Of Income And Retained Earnings For The Year Ended December 31, 1977

with comparative figures for 1976

	1977 (000)	1976 (000)
<b>Revenue</b> .....	\$147,334	133,039
<b>Expenses</b>		
Generation, transmission and administration .....	42,901	38,326
Depreciation .....	17,810	16,434
Interest (Note 8) .....	70,456	62,352
	<u>131,167</u>	<u>117,112</u>
<b>Net income before minority interest and deferred income taxes</b> .....	16,167	15,927
<b>Deferred income taxes</b> .....	—	6,125
<b>Minority interest</b> .....	<u>10,677</u>	<u>7,280</u>
<b>Net income for the year</b> .....	5,490	2,522
<b>Retained earnings</b>		
Beginning of year .....	19,316	6,803
Transfer of deferred income taxes ...	—	9,991
End of year .....	<u>\$24,806</u>	<u>19,316</u>

## Consolidated Statement Of Changes In Financial Position For The Year Ended December 31, 1977

with comparative figures for 1976

	1977 (000)	1976 (000)
<b>Funds provided</b>		
From operations		
Net income .....	\$ 5,490	2,522
Add items not requiring working capital .....	<u>31,609</u>	<u>30,088</u>
Funds provided by operations ..	37,099	32,610
Proceeds from long-term debt .....	143,300	135,197
Dividends received from Twin Falls Power Corporation Limited .....	725	1,037
Total funds provided .....	<u>181,124</u>	<u>168,844</u>
<b>Funds applied</b>		
Reduction of long-term debt .....	127,371	32,391
Additions to fixed assets .....	55,811	70,720
Debt discount and financing expenses .....	1,657	1,823
Dividends paid by a subsidiary to minority interest .....	5,091	2,545
Total funds applied .....	<u>189,930</u>	<u>107,479</u>
Increase (decrease) in working capital deficiency .....	8,806	(61,365)
Working capital deficiency as at beginning of year .....	<u>19,963</u>	<u>81,328</u>
Working capital deficiency as at end of year .....	<u>\$ 28,769</u>	<u>19,963</u>

See accompanying notes



# Newfoundland and Labrador Hydro

## Notes To Consolidated Financial Statements December 31, 1977

### 1. Summary of significant accounting policies

The accounting policies followed by Newfoundland and Labrador Hydro ("Hydro") and its subsidiaries are in accordance with generally accepted accounting principles in Canada.

#### Principles of consolidation

The consolidated balance sheet includes the accounts of Hydro and those of its subsidiary companies, Churchill Falls (Labrador) Corporation Limited ("CFLCo"), (65.8% owned) and Gull Island Power Company Limited ("GIPCo"), (100% owned).

The excess of cost of the investment in CFLCo over the equity in the book value of the net assets acquired is assigned to property, plant and equipment.

A portion of Hydro's shareholding in CFLCo is deposited in a voting trust pursuant to an agreement with Quebec Hydro-Electric Commission ("Hydro-Quebec").

GIPCo is involved in the development of the hydro-electric potential at Gull Island on the Lower Churchill River in Labrador, and the construction of a direct current transmission system from Labrador to the Island of Newfoundland ("Gull Island Project").

CFLCo owns voting control (66 $\frac{2}{3}$ %) of Twin Falls Power Corporation Limited ("Twin Falls") but only a 33 $\frac{1}{3}$ % equity interest, and as the principal assets and credit resources of Twin Falls cannot be transferred to CFLCo, consolidation is not considered appropriate and the investment is carried on an equity basis.

#### Fixed assets and depreciation

##### Hydro and GIPCo

Plant under construction includes the costs incurred in preliminary feasibility studies, engineering and design of new generation and transmission facilities. Interest is charged to plant under construction at rates equivalent to the average cost of funds borrowed.

Depreciation is calculated on hydro-electric generating plant and on transmission plant in service on the sinking fund method using interest factors ranging from 5 $\frac{1}{4}$ % to 10%. Depreciation on other plant in service is calculated on the straight-line method. These methods are designed to fully amortize the cost of the facilities, after deducting grants in aid of construction, over their estimated service lives.

Estimated service lives of the major assets are as follows:

#### Generation

Hydro-electric .....	50, 75 and 100 years
Thermal-electric .....	25 and 30 years
Transmission	
Lines .....	40 and 50 years
Switching stations .....	40 years

#### CFLCo

Depreciation is provided for at a rate of 1 $\frac{1}{2}$ % per annum on a straight-line basis.

#### Debt discount and financing expenses

These costs are, in general, amortized on a straight-line basis over the lives of the respective issues.

#### Provision for insurance

Hydro and CFLCo follow the practice of including in operating expenses charges for self-insurance of certain risks of direct damage to assets and for related losses with respect to the deductibles stipulated in their insurance policies.

#### Provision for water equalization

In order to compensate for the effect of year to year variations in fuel consumption resulting from fluctuations in natural water flows, Hydro has adopted the accounting treatment of recording a provision for water equalization.

#### Foreign currencies

Foreign currency accounts are stated in Canadian dollars on the following basis:

- Current assets and liabilities, exclusive of current portion of long-term debt, at the rate of exchange prevailing at the balance sheet date.
- Long-term debt at the proceeds realized in Canadian currency at the time of conversion except in those cases where debt was incurred to discharge an obligation in the same foreign currency in which case the exchange rate prevailing when the loan was incurred is applied. No recognition is given in the accounts to unrealized gains or losses.
- All other assets and any related depreciation at rates in effect at time of the transaction.
- Gains or losses arising on the conversion of foreign currencies are included with interest in the statement of income.



## Income taxes

Hydro, GIPCo, and CFLCo are exempt from paying income taxes under Section 149 (1) (d) of the Income Tax Act.

## 2. Fixed assets

	1977 (000)	1976 (000)
<b>HYDRO</b>		
Property, plant and equipment, at cost .....	\$ 337,175	265,538
Less grants in aid of construction .....	24,000	24,000
	313,175	241,538
Less accumulated depreciation ...	17,379	14,011
	295,796	227,527
Plant under construction .....	16,555	45,599
	312,351	273,126
<b>GIPCo</b>		
Gull Island Project, at cost (Note 10) .....	81,315	72,256
<b>CFLCo (a)</b>		
Property, plant and equipment, at cost .....	948,963	945,521
Less accumulated depreciation ...	57,882	43,684
	891,081	901,837
	\$1,284,747	1,247,219

(a) The assets of CFLCo are pledged as security for the long-term debt of that company.

## 3. Long-term receivable

This receivable, in the amount of \$7,241,000, represents amounts due from the Province of Newfoundland ("Newfoundland") which will become collectible if and when the natural water inflows at the Corporation's reservoirs are less than normal (refer to note 1 "Provision for water equalization").

## 4. Investment in Twin Falls Power Corporation Limited

	1977 (000)	1976 (000)
Shares, at cost .....	\$2,500	2,500
Equity in retained earnings at beginning of year .....	164	166
Equity in net income for the year	1,004	1,035
Dividends for the year .....	(725)	(1,037)
	\$2,943	2,664

## 5. Long-term debt

	Hydro (000)	CFLCo (000)	GIPCo (000)	1977 Total (000)	1976 Total (000)
Summary of long-term debt					
Bonds, notes debentures .....	\$269,166	642,277	—	911,443	873,489
Bank loans .....	62,678	—	—	62,678	89,491
Government of Canada loans .....	95,283	—	—	95,283	96,421
Province of Newfoundland loan .....	—	—	78,300	78,300	70,095
Total long-term debt .....	\$427,127	642,277	78,300	1,147,704	1,129,496

Details of long-term debt are as follows:

## HYDRO

Bonds, notes and debentures, redeemable at the option of Hydro at various times and at various rates, none of which exceeds 102.4% of par.

Interest Rate	Year of Maturity	1977 (000)	1976 (000)
5 1/4%	1990 (U.S. \$29,480,000)	\$ 31,819	33,848 (a)
7 3/4%	1993 (U.S. \$25,000,000)	26,773	26,773
9%	1994 (U.S. \$13,650,000)	14,674	15,159
9 1/4%	1986 (U.S. \$25,000,000)	24,614	24,614
8 1/8%	1992	15,000	15,000
8 7/8%	1999	20,000	20,000
10 3/4%	1995	25,000	25,000
8%	1981 (SW Fr. 75,000,000)	28,286	28,286
7%	1981 (£665,000 Sterling)	1,149	1,436
10 1/4%	2001	30,000	30,000
10%	2002	30,000	—
10% Series J	2002	35,000	—
		282,315	220,116
Less sinking fund investments .....		7,626	5,356
		274,689	214,760
Less payments due within one year .....		5,523	4,548
		\$269,166	210,212

(a) Secured by an assignment of amounts receivable under a power contract of Hydro.

## Bank loans

These loans, in the amount of \$80,439,000 (U.S. \$81,120,000) (1976 \$107,252,000) repayable in five equal annual instalments which commenced in 1976 and \$9,052,000 (U.S. \$9,122,000) (1976 \$9,052,000) repayable in three equal annual instalments commencing in 1979, bear interest at various rates which at December 31, 1977 ranged from 7 7/16% to 8 9/16%. The current portion as at December 31, 1977 and 1976 was \$26,813,000.

The interest rates are adjusted periodically based upon the London interbank offering rate. Hydro has the option of repaying these loans in whole or in part on any interest adjustment date. As a condition of the former loan, Hydro has agreed not to dispose of or create any encumbrance upon 4,989,300 of the common shares of CFLCo which it holds.

## Government of Canada loans

These loans, in the amount of \$96,421,000 (1976 \$97,486,000), bear interest at various rates from 5 1/4% to 8 1/2% and each loan is repayable commencing March 31, following the completion date of each related facility, by thirty to forty equal annual instalments including interest. The years of maturity of these loans range between 2003 and 2014, and the current portion as at December 31, 1977 was \$1,138,000 (1976 \$1,065,000).

## CFLCo

	1977 (000)	1976 (000)
First Mortgage Bonds		
7 3/4% Series A due December 15, 2007 (U.S. \$500,000,000) .....	\$513,277	513,277
7 7/8% Series B due December 15, 2007 .....		
	50,000	50,000
General Mortgage Bonds		
7 1/2% due three years after		



latest maturity of any First Mortgage Bonds .....	100,000	100,000
	663,277	663,277
Less payments due within one year .....	21,000	—
	<u>\$642,277</u>	<u>663,277</u>

The First Mortgage Bonds, Series A and B, are repayable in fixed semi-annual and in contingent annual sinking fund instalments commencing June 1978.

The Deed of Trust and Mortgage securing the General Mortgage Bonds provides for semi-annual sinking fund payments commencing in June 1980. Each payment will be an amount equal to 1% of the aggregate principal amount outstanding on January 1, preceding each payment date. The General Mortgage Bonds are subordinate to the First Mortgage Bonds.

## GIPCo

### Province of Newfoundland loan

This loan, in the amount of \$78,300,000, bears interest at 10% and is repayable on or before December 31, 1979. The terms of the loan provide, inter alia, for forgiveness if the Gull Island Project is not reactivated by 1980.

It is estimated that repayments of long-term debt over the next five years, exclusive of the \$78,300,000 Province of Newfoundland loan, will be as follows:

	(000)
1978	\$55,000
1979	56,000
1980	58,000
1981	59,000
1982	28,000

Based on exchange rates in effect at December 31, 1977, after giving effect to foreign exchange cost sharing arrangements provided for in the contract between CFLCo and Hydro-Quebec ("Power Contract"), the approximate amount required to discharge foreign currency debt obligations recorded in the accounts in Canadian dollars as \$730,000,000 would be \$773,000,000.

## 6. Guarantees by the Province of Newfoundland

Newfoundland has unconditionally guaranteed the principal and interest on the long-term debt of Hydro, but not that of CFLCo.

## 7. Sales of power, CFLCo

The Power Contract provides for the sale of substantially all of the power from the CFLCo Project for an initial period of approximately 40 years with a renewal for a further period of 25 years. Sales of power under the Power Contract have been recorded at mill rates based on an estimate of the final capital cost of the CFLCo Project, as defined, and are subject to adjustment when such cost is determined. It is not anticipated that such adjustment will result in a decrease in recorded sales.

## 8. Interest expense

	1977 (000)	1976 (000)
Gross interest .....	\$90,446	87,147

Amortization of debt discount and financing expenses .....	685	598
	91,131	87,745
Less:		
Recovered from		
Hydro-Quebec (a) .....	14,632	14,024
Interest capitalized .....	4,059	8,705
Interest earned .....	4,239	2,222
Exchange (loss) gain on sinking fund transactions and retirement of debt .....	(2,255)	442
	<u>\$70,456</u>	<u>62,352</u>

(a) Under the terms of the Power Contract, CFLCo recovers the difference between interest calculated at the rates prescribed in the Power Contract and interest paid on the long-term debt of CFLCo.

## 9. Dividend restrictions, CFLCo

Under the terms of the debt instruments, CFLCo may pay cash dividends only out of earnings, as defined, accumulated from September 1, 1976. As at December 31, 1977, the amount of retained earnings available for cash dividends was \$9,767,000.

Subsequent to December 31, 1977, the Board of Directors declared a dividend on common shares amounting to \$8,760,000, of which \$2,896,000 will be paid to minority interest. In 1976 the dividend declared subsequent to year end was appropriated and included in current liabilities.

## 10. Gull Island Project

Following a breakdown in discussions between Newfoundland and the Province of Quebec regarding Newfoundland's request for access to 800 megawatts of power from CFLCo, and in accordance with instructions from Newfoundland, Hydro has suspended all work on the Gull Island Project, which was being undertaken by its subsidiary company, GIPCo.

In September 1976 Newfoundland commenced action in the Supreme Court of Newfoundland designed to clarify its right to access to power from CFLCo.

## 11. The Electrical Power Control Act

Hydro became subject, in part, to the provisions of the Electrical Power Control Act, Newfoundland, effective June 1977. The Act provides, inter alia, that the rates charged by Hydro should provide sufficient revenue to enable it to recover the cost of service provided by it and a margin of profit sufficient to maintain a sound financial position. Effective March 17, 1978, Hydro was granted a 25.2% increase in rates to wholesale customers.

## 12. Commitments and contingent liabilities

- Proceedings have been instituted by CFLCo against contractors claiming approximately \$7,000,000 for damages resulting from the reduction in revenue due to premature failure of certain generating units.
- CFLCo is defending a legal action instituted by Newfoundland in connection with a request by Newfoundland for the supply by CFLCo of 800 megawatts of power commencing in 1983. It is not possible at this time to indicate the outcome of this legal proceeding.
- Under the terms of a sublease with Twin Falls, which



expires December 31, 1989, with a 25-year renewal option under certain conditions, CFLCo is required to deliver to Twin Falls, at an agreed price, horsepower equivalent to the installed horsepower of the Twin Falls plant and to maintain in good working order, Twin Falls' plant and equipment.

- d) Contractual commitments as at December 31, 1977 total approximately \$28,700,000 (1976 - \$33,500,000). The total cost of major capital projects presently under construction and to be completed by 1980 is estimated to be \$160,000,000.

### **13. Anti-Inflation Act**

Hydro is subject to the Anti-Inflation Act and Regulations with respect to prices and compensation.

### **14. Comparative figures**

Certain comparative figures have been reclassified to conform with the current year's presentation.

### **15. Subsequent event**

On March 1, 1978, Hydro sold \$35,000,000, 10<sup>1</sup>/<sub>4</sub>% Sinking Fund Debentures, Series K, due October 15, 2001 at a price equal to 98.75% of the principal amount thereof.



## Planning

Extensive studies were concluded during 1977 to identify the optimal generation expansion programme for the Corporation to meet the Province's power and energy requirements during the 1980s, under a variety of possible load conditions. Special attention was given to an assessment of the benefits to be derived from proceeding with development of the Island's untapped hydro-electric potential in relation to alternative possible dates for the establishment of a bulk power and energy infeed to the Island from Labrador.

The results of this analysis led the Corporation to expand its existing generation facility construction programme to include the Hinds Lake hydro-electric project. This plant will have an installed capacity of 75 MW in one unit and will add an average annual energy capability to the Island system of 319 gWh when it is available for service in 1980.

The Corporation had previously initiated a programme of environmental analysis related to all potentially attractive new development sites and this work was intensified, with respect to Hinds Lake, during the year. In the Fall, prior to finalising a decision to proceed with the Hinds Lake project, public meetings were held in several locations throughout the Province. This procedure reflects the Corporation's desire to promote public understanding of the potential environmental impact of projects under active consideration and thereby facilitate the orderly approval of attractive development schemes.

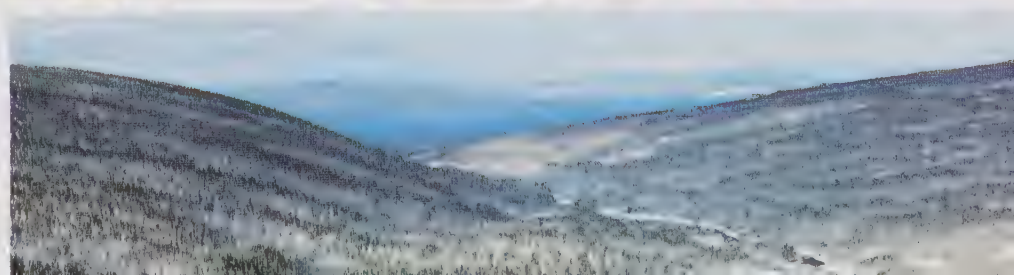
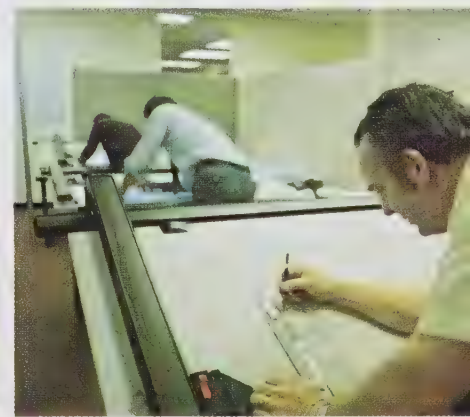
An environmental guide book for workers was also published during the year and distributed throughout the Corporation to operational and project staff. Copies of this informative reference document will, in future, also be made available to the employees of contractors engaged by the Corporation to carry out construction activity.

Considerable progress was also made during 1977 in the enhancement of corporate information systems. An internal organizational change realigned the Financial Planning staff and permitted integrated technical systems, financial and economic analysis of corporate objectives, problems and opportunities.

An agreement in principle was reached with the National Research Council during the past year for the conduct of a research-demonstration project involving a 50 KW Vertical Axis Wind Turbine. This unit is to be placed at Holyrood, near St. John's, and will be inter-connected to the Island transmission grid. The wind turbine performance will be carefully monitored during a two-year period to establish the potential of wind power as a complementary energy source for utilization within the Province. The most attractive applications of wind power technology appear to lie in isolated areas where wind power would complement diesel generation and maximize cost saving through fuel displacement.

A variety of planning activities

during the past year focused on the Corporation's Labrador power interests. These included the initiation of a detailed evaluation of the undeveloped hydro-electric potential of Southern Labrador; the establishment of preliminary layout and cost estimates for a possible development at Muskrat Falls; and power and energy optimization analysis of the Churchill River under a variety of circumstances, including possible river diversions and the construction of generating plants at both Gull Island and Muskrat Falls. Special attention continued to be given, of course, to the Gull Island project. Specific assignments were undertaken to monitor various climatic and environmental conditions of interest for project design and the re-examination of previously developed construction cost estimates. A variety of additional background studies was also performed to support discussions with representatives of the Federal Government, and other Provincial Governments, aimed at facilitating the reactivation of construction on this important and highly attractive power development.









## Industrial Relations

Newfoundland and Labrador Hydro employed a total of 1,302 persons at the end of 1977, of whom 363 worked for CFLCo and the balance of 939 worked for Hydro and in administering the Rural Electrification Program.

Negotiations between the Corporation and the International Brotherhood of Electrical Workers were successfully concluded for both the Operations and Office Workers units. The agreements were for a one year period, expiring on March 31, 1978.

Training and upgrading of staff continued at an increased pace during the year. A total of 753 man days were spent on training and upgrading programs, including a new university graduate development program and a program for upgrading

linesmen. 1978 will see the continuation of these programs and in addition, there will be a concentrated effort on programs relating to the development of managers and supervisors.

During 1977 steps were taken to expand the activities of the Industrial Relations department to include career development and manpower planning.

Lack of suitable office accommodation in St. John's continues to be a problem and at present no solution appears to be in sight. This is having an adverse effect on staff morale and corporate efficiency.



## Public Relations

Continued public interest in Newfoundland and Labrador Hydro's activities was evident during 1977. The application for a rate increase and subsequent hearings before the Board of Public Utilities prompted many enquiries.

As in previous years many groups of school children visited the generating stations at Bay d'Espoir and Holyrood and a number of school visitations were carried out to outline the activities of Hydro.

Customer information programs were again carried out during the year with emphasis on the need for increased levels of home insulation. There were also increased enquiries for information on the conservation of electrical energy in homes.









## Rural Electrification

Newfoundland and Labrador Hydro provides management services and personnel to operate and maintain the rural power distribution system on behalf of the Provincial Government, (Power Distribution District of Newfoundland & Labrador). The rural power system supplies the electrical needs of approximately 20,000 customers, 50% of whom are served from 52 isolated diesel plants scattered throughout the Province. The remaining 50% are supplied through connections with the main Island grid and Churchill Falls. The Government directly finances the operating losses and the capital requirements of the rural power distribution system.

In 1977 a new tie line was energized between the Goose Bay Hydro Substation and the south side of the Goose Bay complex. The line is expected to deliver 30,000,000 kWh or about half of the entire load for the area.

At Black Tickle a new generating plant was constructed at a cost of \$327,000. This plant will provide power for a new fish processing facility there, in addition to domestic customers. Expansion of generating facilities were completed at Ramea (cost - \$428,000), Charlottetown (cost - \$50,000) and Roddickton (cost - \$380,000).

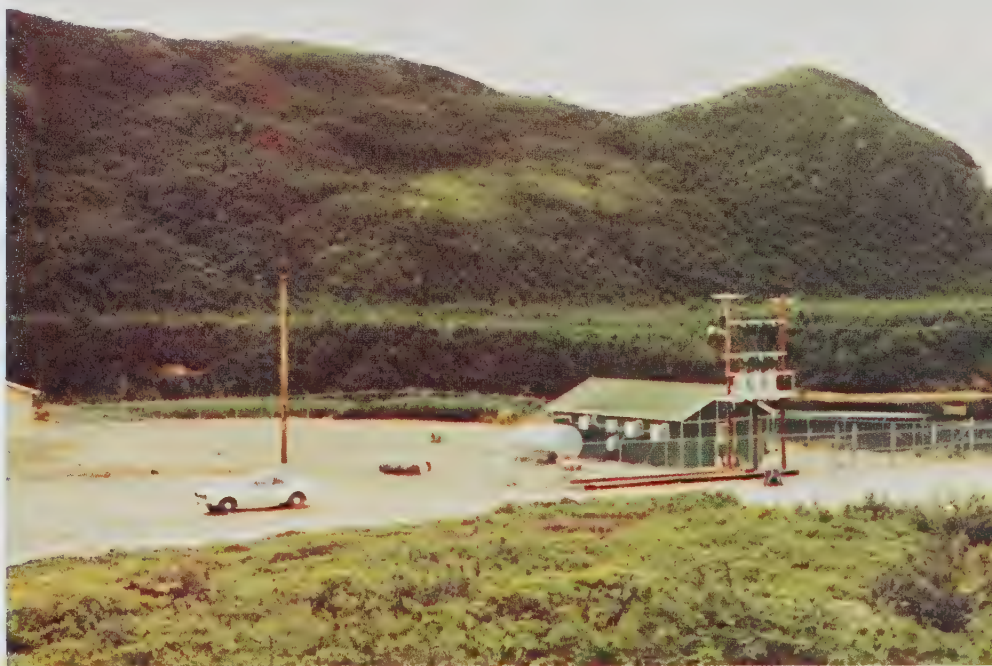
In spite of increasing rates significant growth continues to occur on most of the rural systems. This gives rise to a need for further capital to finance the cost of meeting the increased demand. As well, some of the line systems which were adequate in early days of rural electrification now require some form of upgrading to keep pace.

Capital expenditures for the year ending March 31, 1978 are estimated to be \$3,451,000. During the same period Government operating subsidies are estimated to be \$11,800,000.



*Top: Diesel generating station, Nain, Northern Labrador*

*Below: Diesel generating station at Grand LePier*





## Churchill Falls (Labrador) Corporation Limited

1977 was an extremely eventful year for CFLCo, with major accomplishments achieved during a very difficult transitional period in the management of the Corporation and the relocation of

its executive offices from Montreal to St. John's, Newfoundland. All of this was overshadowed by the tragic circumstances surrounding the loss of eight lives in the crash of the Corporation's aircraft near

Churchill Falls at year-end. Among the eight were two Vice-Presidents, the Company Secretary and three senior staff; a sad personal loss to families and friends of the victims and a

*Switchyard for the 5,225 MW Hydro electric generating plant, Churchill Falls, Labrador*





crippling blow to the management of the organization.

The generating station operated at 75% availability during the year as repairs continued to the defective generators on Units 1, 3, 5 and 7. In spite of this, 36.2 billion kilowatthours were generated during the year, which is about 5% in excess of

amount of \$2.3 million in 1977 as compared to \$3.1 million in 1976, on account of this repair programme.

In December, following successful completion of the repairs, all eleven units were for the first time tested to full capacity and a load of 5,658 megawatts was recorded at the station on December 3rd.



estimated average capability. 92% of this output was sold to Hydro-Quebec under the prevailing contract, while the remainder was used to supply domestic, commercial and industrial loads in Labrador.

An accelerated programme of repairs for the generator windings, which first gave indication of trouble in December of 1975, was initiated by management in mid-1977. By a concerted effort on the part of many people, including the manufacturers, it was possible to complete four of the five rewinds by December. The remaining unit is scheduled for repair in the spring and summer of 1978 but in the meantime, it is operational. Capacity deficiency penalties were paid to Hydro-Quebec in the

At that time the Corporation was supplying 50% of Quebec's requirements, in addition to meeting the local Labrador load.

The decision taken in late 1976 by the Board of Directors to relocate the executive offices from Montreal to St. John's resulted in a change in several officers and many of the senior financial staff formerly located in Montreal. Mr. J. W. Beaver, President and Mr. L. A. Carrier, Vice-President, Finance, left the group and were replaced by Mr. W. S. Read and Mr. W. W. Garland, respectively. The other changes were managed by making internal moves and by hiring and training new staff. The physical move was very successfully managed during the month of May by Mr. W. W. Garland and Mr. M. C. Burnes

and it was business as usual on June 1st out of the St. John's location. Both of these gentlemen were among the victims of the plane crash referred to earlier.

Labour relations were stable and healthy throughout the year — a marked contrast over the previous year's experience. Successful negotiations were concluded for a new two-year contract with a wage re-opener provision after one year. A very responsible attitude was displayed by all members of both negotiating teams.

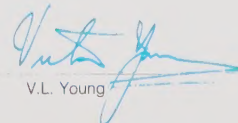
The President addressed the staff towards the end of the year outlining the 1978 goals and signalled the intention of the Corporation to encourage the formation of a Community Advisory Committee. It was hoped that such a group would provide a mechanism for residents to contribute to the building and strengthening of the town of Churchill Falls, while being assured of the continued support of the Corporation in all these efforts.

The long awaited Supreme Court decision in the Walsh Canadian Construction claim was rendered. The amount of the judgement against the Corporation was \$2.8 million and this judgement is being appealed.

The dedicated efforts of all staff during this very difficult year is appreciated by the Chairman and Board of Directors.

March 30, 1978.

Signed:   
D.J. Groom

Signed:   
V.L. Young





## Newfoundland and Labrador Hydro 1977 at a glance

		1977	1976
<b>Power and Energy Sales</b>		\$155 million	\$141 million
<b>Energy Sales</b>		kWh (billion)	kWh (billion)
- Industrial		3.1	2.8
- Utility		2.3	2.0
- Export		<u>33.3</u>	<u>32.0</u>
		38.7 billion kWh	36.8 billion kWh
<b>Capital Expenditures</b>		\$ 56 million	\$ 71 million
<b>Investment in Plant</b>		\$1.3 billion	\$1.3 billion
<b>Generating Capacity</b>		6,482 MW	6,274 MW
<b>Average Annual Energy Capability</b>		39 billion kWh	39 billion kWh
<b>Transmission Lines</b>	Voltage	Miles	Miles
	735,000	378	378
	230,000	1031	1031
	138,000	516	444
	66,000	<u>186</u>	<u>186</u>
	Total	2111	2039
<b>Reservoirs: Drainage Area</b>		29,023 square miles	29,023 square miles
<b>Water Storage</b>		1,190 billion cubic feet	1,190 billion cubic feet
<b>Payroll</b>		\$ 25 million	\$ 22 million
<b>Employees</b>		1,302	1,250

Note: The above represents the position of Newfoundland and Labrador Hydro combined with Churchill Falls (Labrador) Corporation Limited, Twin Falls Power Corporation Limited and Gull Island Power Company Limited.







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